

## Energy News Overview

It was noted in the previous newsletter that the Energy Information Administration (EIA) released the early version reference case of its Annual Energy Outlook 2014 (AEO 2014) and that we would outline some of the high level observations in this newsletter. Some high level takeaways are:

- The number of miles U.S. light duty vehicle travel is forecast to increase at a lower rate in AEO2014 and fuel consumed in 2035 is about 7% lower than in AEO2013.
- The U.S. becomes a net natural gas exporter around 2018 and natural gas overtakes coal in the power generation sector around 2035.
- Crude oil production growth is revised upward because of technology improvements and reaches 9.6 million barrels per day in 2019, fairly close to the previous peak of 10 mmd reached in 1970.
- Net U.S. energy imports will fall from 16% in 2012 to 4% in 2040, primarily the result of increasing crude oil, natural gas and renewable energy production.
- Due to more efficient use of energy and lower population growth U.S. energy-related carbon dioxide emissions remain below the 2005 peak throughout the forecast period.

The series of cold fronts hammering the Midwest and east coast have driven up demand for heating fuels: nationally natural gas demand was up 17.6% last week and Henry Hub spot prices exceeded \$5 per MMBtu for the first time since 2009. Propane has been in short supply throughout the Midwest and parts of the Southeast causing wholesale prices to rise above \$4.5 per gallon. Additional propane from out-of-region is being moved by rail and truck to alleviate the shortage, causing a small wholesale price ripple as far away as the Pacific Northwest. See articles on pg. 6.

The rapid expansion of tight oil production in North Dakota and Texas has driven the equally rapid expansion of transport of oil by railcar over the past few years: in 2013 approximately 400,000 rail cars containing crude oil were delivered versus 9,500 in 2008. A consequence of this tremendous increase has been a series of spectacular oil train derailments and fires, with 47 people killed in the tragic derailment and fire in Lac-Mégantic last July. These accidents have motivated politicians, federal regulators, railroads and the oil industry to seek relatively rapid (many years) measures that can decrease the hazard of transporting oil by rail: See article on pg. 6. These measures include more frequent inspections of rail cars and tracks, rapid replacement of the less puncture resistant older rail cars, and the rerouting of trains hauling flammable liquids away from population centers. This subject is of some concern in Washington as all the refineries in the state have expanded their oil by rail offloading facilities or are planning to in the near future. In addition, Tesoro/Savage has submitted a proposal to EFSEC for review and permitting. The proposal is to build an oil distribution center in the industrial area of Vancouver Washington, with a capacity to handle 360,000 barrels per day of crude oil delivered by train. The oil would be distributed to west coast refineries by small tanker or barge. EFSEC link on pg.

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# What's Happening in the Energy Office

## Commerce adopts rules to update and strengthen the Energy Independence Act (I-937)

On Jan. 24 Commerce adopted amendments to update the rules implementing the state renewable portfolio statute, known as the Energy Independence Act or Initiative 937.

Many of the rule changes are updates to reflect changes in the law or in industry practices. For example, the references to an outdated conservation tracking system were eliminated, and the Legislature's 2012 decision to include older biomass facilities was added. However, the new rules also strengthen the law in several ways. Utilities are no longer allowed to substitute a simplified "conservation calculator" for a detailed assessment of the conservation potential in their service areas. Also, utilities must now include information in their annual reports to Commerce that show how much they are spending on renewable resources. The rules also strengthen documentation requirements to reduce the risk of double-counting renewable energy.

Stakeholders identified other potential changes to Chapter 194-37 WAC that Commerce intends to address in a second phase of the rule making later this year.

The rule making documents are available here: [commerce.wa.gov/eia](http://commerce.wa.gov/eia)

For more information: Glenn Blackmon, [eia@commerce.wa.gov](mailto:eia@commerce.wa.gov), 360 725-3115.

## The End of the American Recovery and Reinvestment Act Program at the Energy Office

The Energy Office completed work on five successful American Recovery and Reinvestment Act programs and reported on them to the U.S. Dept. of Energy.

- Energy Efficiency and Conservation Block Grants (energy grants to local governments)
- Energy Efficient Appliance Rebate Program
- Energy Assurance Planning (developed an outage tracking system)
- Save Energy Now: Northwest Industrial Partnerships, and the
- State Energy Program (grants and loans, credit enhancement projects, community energy efficiency program, & farm energy program).

# Electricity, Petroleum & Natural Gas Prices

## Energy Price Overview

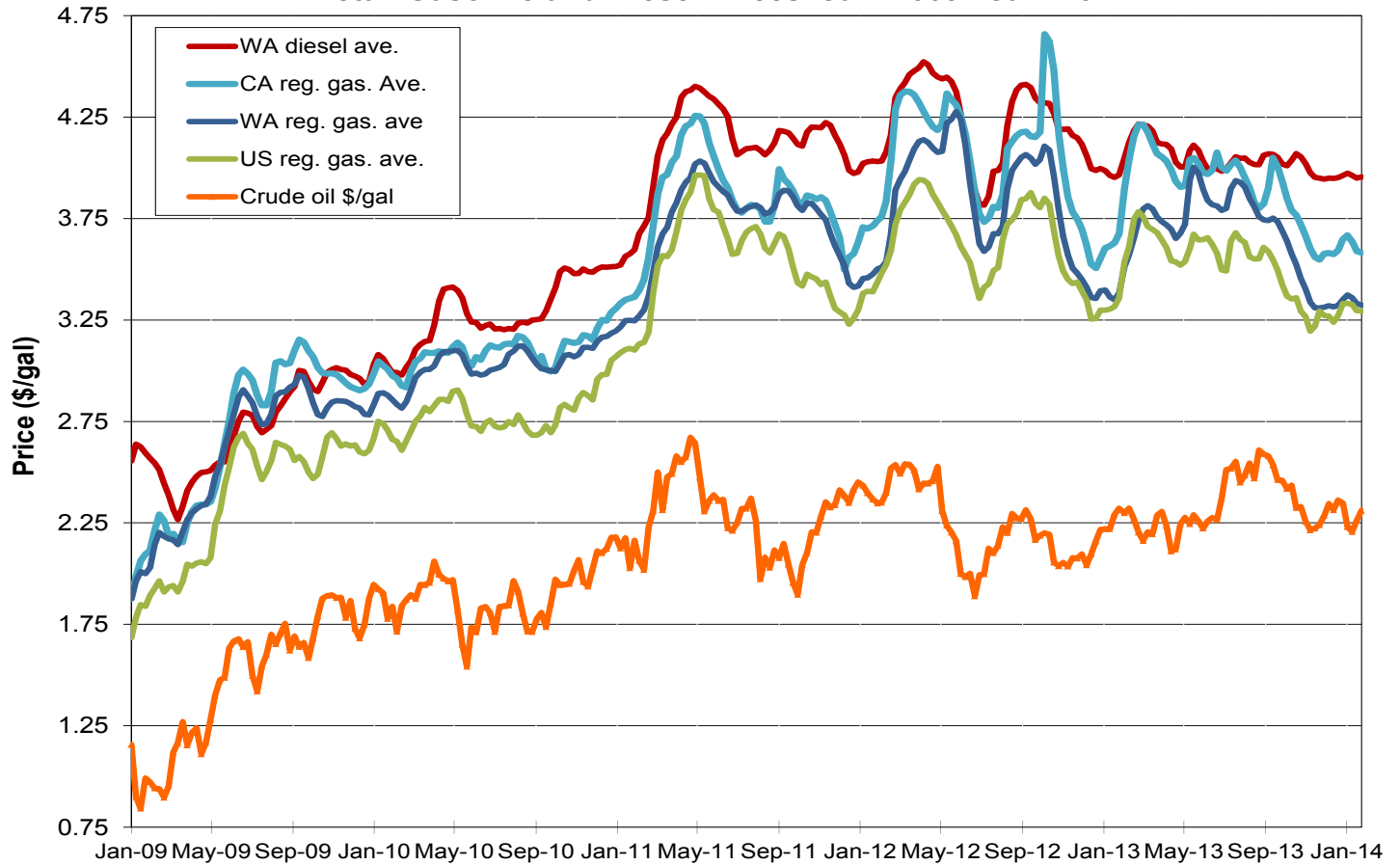
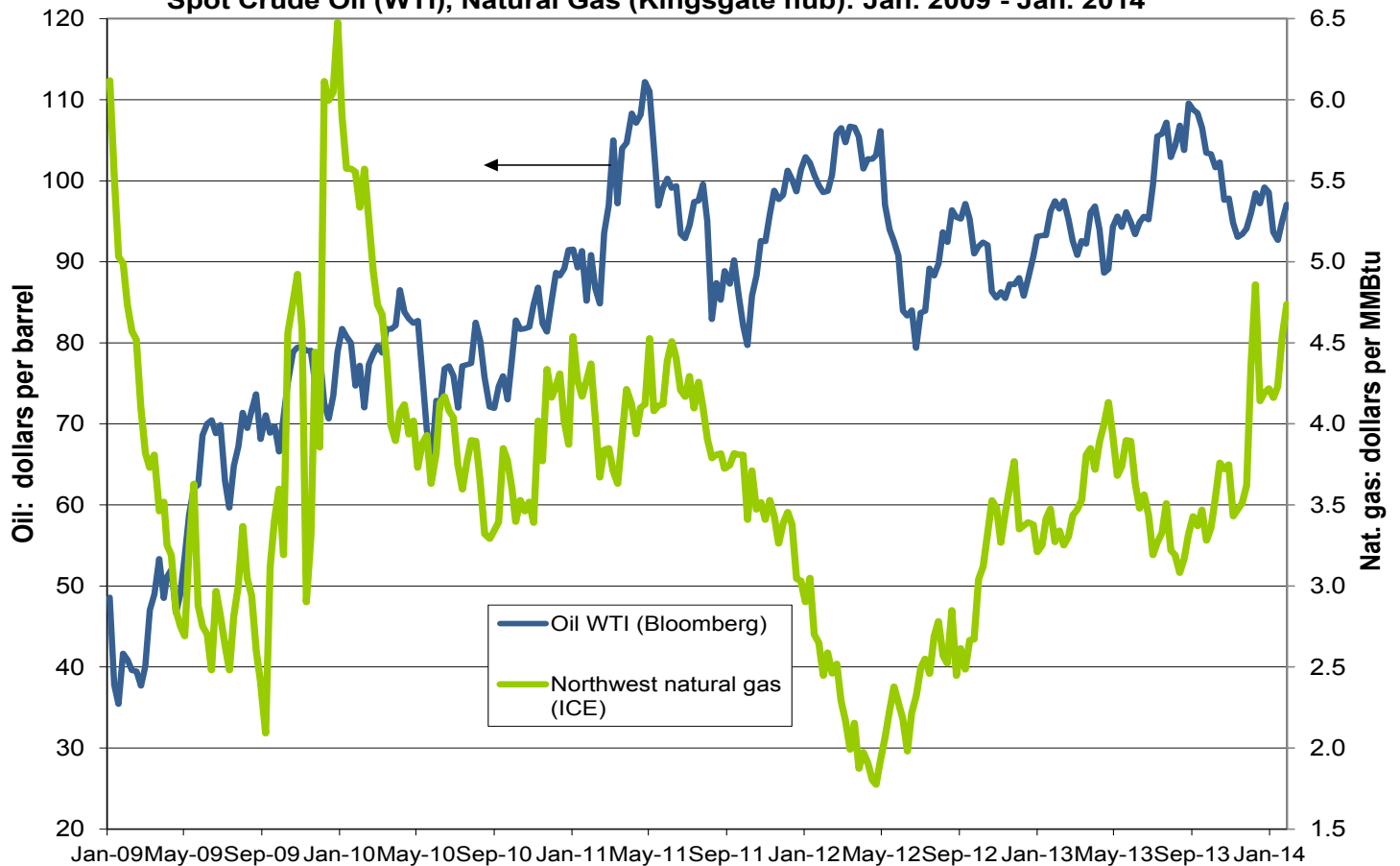
Signs of a small decrease in China's economic growth have put a bit of downward pressure on oil prices. West Texas Intermediate traded below \$95 per barrel for much of January, but finished the month at \$97. The Dept. of Energy foresees modest downward pressure on oil prices due to increased North American production and forecasts WTI to average \$93.3 and \$89.6 per barrel in 2014 and 2015 respectively: the average for 2013 was \$97.9. After increasing for four years in a row, growing crude oil production finally seems poised to reduce prices. A Bloomberg report suggested that the forecast lower oil prices would save consumers \$6 to 8 billion per month.

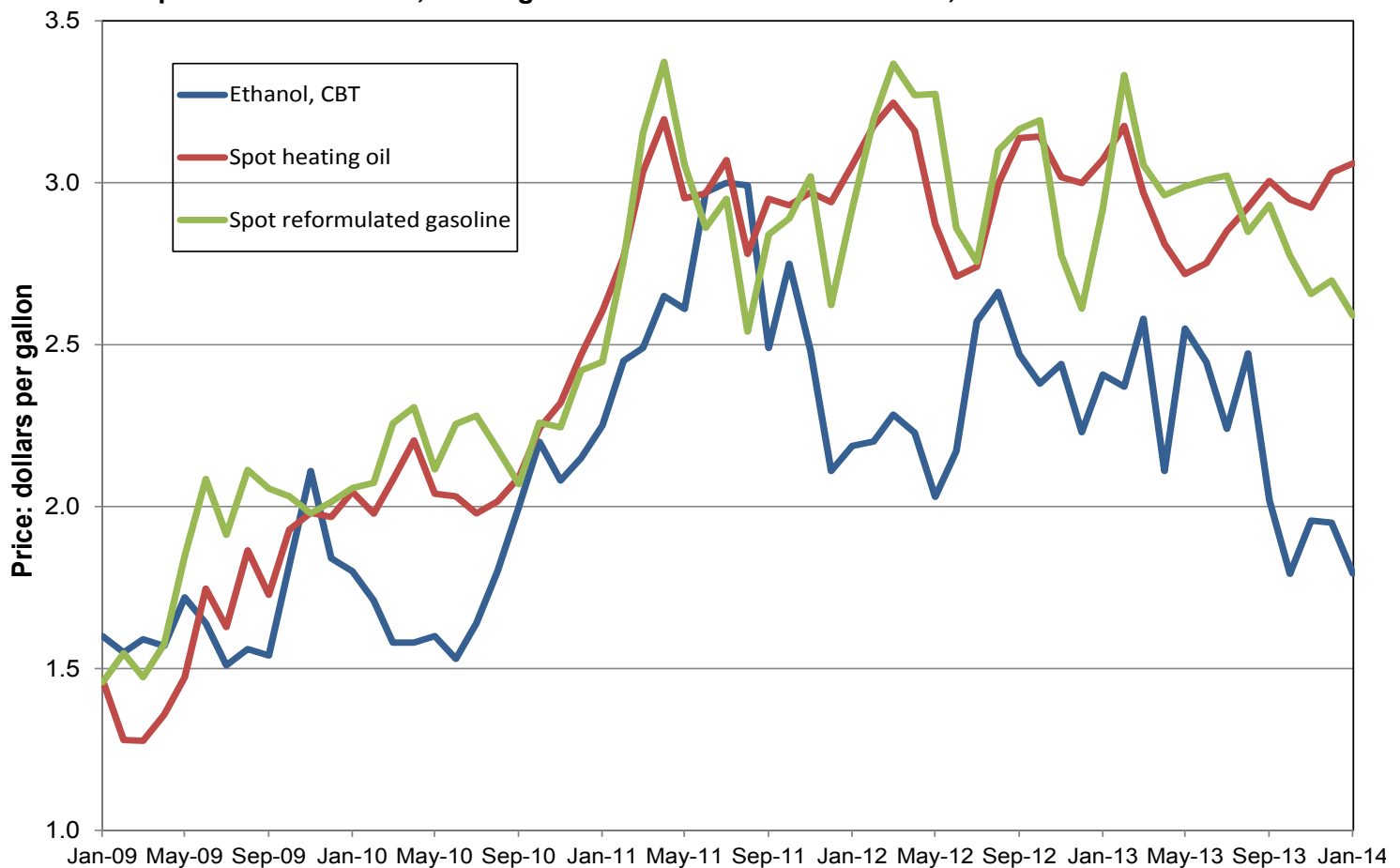
During the last week of December U.S. gasoline and diesel prices averaged \$3.30 and \$3.90 per gallon virtually unchanged from the previous week or last month. Washington state gasoline and diesel prices averaged \$3.32 and \$3.95 per gallon largely unchanged from last month. Gasoline and diesel prices reached a low in early December and have hardly budged since, likely the result of slightly lower crude oil prices. The differential between the average national and Washington state (per gallon) price for gasoline and diesel is only a few cents per gallon instead of the typical 15 cents.

The price for month ahead NYMEX natural gas rose slightly \$4.38 per MMBtu: a 10 cent increase from the previous month. For several days the Henry Hub spot price was above \$5 per MMBtu. The price increase is the result of cold weather in the East and Midwest and below average gas storage inventories. Locally natural gas spot price at Kingsgate was \$4.74 per MMBtu, up 52 cents from the price reported last month. See EIA's Natural Gas Weekly (link on pg 7) for discussion of Sumas gas prices. Nationally there was a large natural gas storage draw of 201 Bcf last week. Gas storage levels are 2,193 Bcf about 20% below the 5-year storage average at this time. Gas storage level in the West is running 13% below the 5-year average.

Regional electricity prices retreated from the highs of Dec. as temperatures moderated: Jan. monthly average spot price was \$40.2 per MWh versus \$59 for the previous month. This is still \$10 per MWh higher than the Jan. 2012 average monthly spot price. Hydropower generation is down 20 percent from last year. Thermal generation resources, which are more expensive to operate, have been called on to make up the shortfall.

<b>Energy Price Summary</b>	<b>Current</b>	<b>Month Ago</b>	<b>Year Ago</b>
Monthly Range at Mid-C (Peak: \$ per MWh)	32.5-47	38-100	24-38
Average Mid C price (Peak hours \$ MWh)	40.2	59.0	29.1
Electricity WA Retail: Nov. (cents/kWh)	7.03	7.01	7.04
Natural gas Kingsgate spot price (next day: \$ per million BTU)	4.74	4.22	3.27
Natural gas Sumas futures price (next month \$ per million BTU)	4.87	4.59	3.57
Natural gas futures (NYMEX next month: \$ per million BTU)	4.38	4.28	3.36
E85 (national average: \$ per gallon gasoline)	3.67	3.83	4.06
Ethanol (CBT next month contract: \$ per gallon)	1.79	1.95	2.41
Corn (CBT next month contract: \$ per bushel)	4.48	4.51	7.29
Petroleum, West Texas Intermediate futures (\$ per barrel)	97.1	98.6	97.5
Seattle gasoline price (\$ per gallon)	3.40	3.42	3.47
Gasoline futures (NYMEX next month: \$ per gallon)	2.67	2.72	2.79
State diesel price (\$ per gallon)	3.95	3.96	3.96
Heating oil futures (NYMEX next month: \$ per gallon)	3.00	3.04	3.05
U.S. residential propane price report (reported Oct.-Mar.)	4.01	2.80	2.47
<b>Clean Cities: Alternative Fuel Price Report, Oct. 2013</b>	<b>US Avg current</b>	<b>West Coast current qtr</b>	<b>West Coast last qtr avg</b>
Ethanol E85 (\$ per gas gallon equiv. )	4.29	4.61	4.79
Biodiesel B20 (\$ per diesel gallon equiv.)	4.10	4.35	4.21
Biodiesel B99-100 (\$ per diesel gallon equiv.)	4.60	4.84	4.81
Compressed Natural Gas (\$ per gas gallon equiv. )	2.09	2.31	2.43
Propane (\$ per gas gallon equiv.)	3.86	4.22	4.13

**Retail Gasoline and Diesel Prices: Jan. 2009 - Jan. 2014****Spot Crude Oil (WTI), Natural Gas (Kingsgate hub): Jan. 2009 - Jan. 2014**

**Spot Market: Ethanol, Heating Oil and Reformulated Gasoline, Jan. 2009 - Jan. 2014**

## Energy Headlines - If you only have time to read a few articles—read these.

Lawmakers seek curbs on trading commodities. New York Times, Jan. 15.

<http://www.nytimes.com/2014/01/16/business/lawmakers-to-press-for-tighter-rules-on-physical-commodities.html>

Accidents surge as oil industry takes the train. New York Times, Jan. 25.

<http://www.nytimes.com/2014/01/26/business/energy-environment/accidents-surge-as-oil-industry-takes-the-train.html>

U.S. Solar Jobs Jump 20% in Biggest Climb for Past Four Years. San Jose Mercury News.

[http://www.mercurynews.com/rss/ci\\_25004805](http://www.mercurynews.com/rss/ci_25004805)

Renewable Energy Provides 37% of New US Electrical Generating Capacity in 2013. Renewable Energy World

<http://www.renewableenergyworld.com/rea/news/article/2014/01/renewable-energy-provides-37-of-all-new-us-electrical-generating-capacity-in-2013?cmpid=rss>

States Move to Counter Propane Shortages. Associated Press, Jan. 30. <http://www.spokesman.com/stories/2014/jan/30/states-move-to-counter-propane-shortages/>

Europe, facing economic pain, may ease climate rules. New York Times, Jan. 22.

<http://www.nytimes.com/2014/01/23/business/international/european-union-lowers-ambitions-on-renewable-energy.html>

U.S. oil production keeps rising beyond the forecasts. New York Times, Jan. 24.

<http://www.nytimes.com/2014/01/25/business/us-oil-production-keeps-rising-beyond-the-forecasts.html>

Things Turn Nasty in Olympia over Climate Change. Everett Herald, Jan. 23.

<http://www.heraldnet.com/article/20140123/NEWS01/140129692>

## Energy Headlines—continued

### Electricity

From warheads to cheap energy. New York Times, Jan. 27.

<http://www.nytimes.com/2014/01/28/science/thomas-l-neffs-idea-turned-russian-warheads-into-american-electricity.html?hpw&rref=science>

What Everyone Should Know About Deregulated Electricity Markets. The Energy Collective

<http://theenergycollective.com/sbattaglia/329006/what-everyone-should-know-about-deregulated-electricity-markets>

How Smart Grid Technology Can Build a Better Utility Industry Future: Part 1. The Energy Collective

<https://theenergycollective.com/caseynovak1/327446/how-smart-grid-technology-can-build-better-utility-industry-future-part-1>

How Smart Grid Technology Can Build a Better Utility Industry Future: Part 2. The Energy Collective

<http://theenergycollective.com/caseynovak1/329791/how-smart-grid-technology-can-build-better-utility-industry-future-part-2>

U.S. Offshore Wind Farm, Made in Europe. New York Times, Jan. 23.

<http://www.nytimes.com/2014/01/23/business/energy-environment/us-offshore-wind-farm-made-in-europe.html?partner=rss&emc=rss>

Ten Reasons Intermittent Renewables (Wind & Solar PV) are a Problem. The Energy Collective

<http://theenergycollective.com/gail-tverberg/330446/ten-reasons-intermittent-renewables-wind-and-solar-pv-are-problem>

Energy Department Names Elliot Mainzer Bonneville Power Administration Administrator. US DOE.

<http://energy.gov/articles/energy-department-names-elliott-mainzer-bonneville-power-administration-administrator>

U.S. solar panel maker seeks to close loophole in duties on Chinese products. Dec. 31.

<http://www.nytimes.com/2014/01/01/business/energy-environment/us-solar-panel-maker-seeks-to-close-loophole-in-duties-on-chinese-products.html>

### Climate change

Ninth Circuit Rejects Rehearing in Low Carbon Fuel Standards Challenge. GTH Energy & Natural Resources Law

<http://www.energynaturalresourceslaw.com/2014/01/over-heated-dissent-ninth-circuit-rejects-rehearing-in-low-carbon-fuel-standards-challenge-setting-u.html>

‘Windfall’ Explores the Business of Climate Change. Idaho State Journal

[http://www.idahostatejournal.com/news/entertainment/other/windfall-explores-the-business-of-climate-change/article\\_3994013a-edd9-50bd-92c7-42c2a9131055.html](http://www.idahostatejournal.com/news/entertainment/other/windfall-explores-the-business-of-climate-change/article_3994013a-edd9-50bd-92c7-42c2a9131055.html)

White Roofs Beat ‘Green’ Roofs on Climate Change, Says Berkeley Lab Study. San Francisco Business Times

<http://www.bizjournals.com/sanfrancisco/news/2014/01/21/white-roofs-are-better-for-climate.html>

Industry awakens to threat of climate change. New York Times, Jan. 23.

<http://www.nytimes.com/2014/01/24/science/earth/threat-to-bottom-line-spurs-action-on-climate.html>

2013 listed as one of warmest years on record. New York Times, Jan. 22.

<http://www.nytimes.com/2014/01/22/science/earth/2013-listed-as-one-of-the-warmest-years-on-record.html>

### Petroleum & natural gas

U.S. Propane Shortage Affect Millions in Brutal Freeze. Reuters, Jan. 24.

<http://www.reuters.com/article/2014/01/24/us-energy-propane-shortage-idUSBREA0N0AB20140124>

Retrofitting Locomotives for Natural Gas Hybrid Getting Closer. Associated Press, Jan. 24.

<http://www.spokesman.com/stories/2014/jan/24/retrofitting-locomotives-for-natural-gas-hybrid/>

Environmental Protection Agency Considers Rolling Back 2013 Target for Advanced Biofuels Forbes Magazine.

<http://www.forbes.com/sites/williampentland/2014/01/24/epa-considers-rolling-back-2013-target-for-advanced-biofuels/>

Natural gas prices soar as mercury plummets. New York Times, Jan. 24.

<http://www.nytimes.com/2014/01/25/business/energy-environment/natural-gas-market-heats-up-as-temperatures-fall.html>

## Recent Reports on Energy and Climate Change

Tesoro Savage Petroleum Terminal submission to the Energy Facility Siting Evaluation Council  
<http://www.efsec.wa.gov/Tesoro-Savage.shtml>

<http://www.iea.org/publications/freepublications/publication/name,43771,en.html>

Fifth Assessment Report. Intergovernmental Panel on Climate Change (IPCC) 2013.  
<http://www.ipcc.ch/>

First academic study released in EDF’s groundbreaking methane emissions series. Environmental Defense Fund, Sept 2013.  
<http://www.edf.org/media/first-academic-study-released-edf%E2%80%99s-groundbreaking-methane-emissions-series>

World Bank: 4 Degrees - Turn Down the Heat. Potsdam Institute for Climate Impact Research and Climate Analytics. June 2013. [http://www-wds.worldbank.org/external/default/WDSP/IB/2013/06/14/000445729\\_20130614145941/Rendered/PDF/784240WP0Full00D0CONF0to0June19090L.pdf](http://www-wds.worldbank.org/external/default/WDSP/IB/2013/06/14/000445729_20130614145941/Rendered/PDF/784240WP0Full00D0CONF0to0June19090L.pdf)

Long-term outlook for nuclear power depends on lifetime of plant, EIA, Apr. 2013  
<http://www.eia.gov/todayinenergy/detail.cfm?id=10991>

Environmental Protection Agency 2012 Climate Change Indicators Report.  
<http://www.epa.gov/climatechange/science/indicators/>

Report on the First Quadrennial Technology Review, US Dept. of Energy  
<http://energy.gov/downloads/report-first-quadrennial-technology-review>

Understanding Household Preferences for Alternative- Fuel Vehicle Technologies. Mineta Transportation Institute. <http://www.transweb.sjsu.edu/project/2809.html>

Redrawing the Energy-Climate Map. International Energy Agency, June 2013.  
[http://www.iea.org/media/freepublications/executivesummary/WE02013\\_Climate\\_Excerpt\\_ES\\_WEB.pdf](http://www.iea.org/media/freepublications/executivesummary/WE02013_Climate_Excerpt_ES_WEB.pdf)

Natural Gas Weekly Update: <http://www.eia.gov/naturalgas/weekly/?src=Natural-b1>

Monthly Energy Review, EIA : <http://www.eia.gov/totalenergy/data/monthly/>

Short-term Energy Outlook, EIA : <http://www.eia.gov/forecasts/steo/>

This Week in Petroleum. EIA,: <http://www.eia.gov/oog/info/twip/twip.asp>

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## River & Snow Pack Info

- Observed Jan. stream flow at The Dalles: 90% of average.
- Observed Jan. precipitation above The Dalles: 51% of average.
- Forecast runoff at The Dalles: 80 million acre-feet, 79% of 30-year average
- Forecast snowpack volume: 85% of average.
- Federal hydropower generation in Dec. : 7,428 aMW, 2009-2013 average: 9,269 aMW.
- Reservoir content (Libby, Hungry Horse, Grand Coulee, Dworshak): Dec 76%, 5-year average: 75%.

## Power Exchanged

Average flow of power during the last 30 days

- |                            |         |
|----------------------------|---------|
| • California (exported to) | 2418 MW |
| • Canada (export to)       | -59 MW  |
| • Net power exported:      | 2359 MW |

# NOAA Warmest Years on Record

Year	Among Warmest Five Years	Among Warmest Ten Years
2010	Likely	Very Likely
2005	Likely	Very Likely
1998	Likely	Very Likely
2003	More Likely than Not	Very Likely
<b>2013</b>	<b>More Likely than Not</b>	<b>Likely</b>
2002	More Unlikely than Likely	Very Likely
2006	Unlikely	Likely
2009	Unlikely	Likely
2007	Unlikely	Likely
2004	Unlikely	More Likely than Not



January 21, 2014 | NOAA/NASA 2013 Global Temperatures

**NOAA**

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On January 21st, climate experts from NOAA and NASA presented an informational briefing on 2013 Global Temperatures. This included anomalies on land and ocean temperature, global average temperature, top 10 years on record, warmest years, polar sea ice, and sea ice concentration. They find we are continuing a long-term trend of rising global temperatures, adding to the evidence of ongoing climate change. <http://www.nasa.gov/content/goddard/nasa-finds-2013-sustained-long-term-climate-warming-trend/>

## Effects of Climate Change on Our Energy

The U.S. Dept. of Energy has issued the US Energy Sector Vulnerabilities to Climate Change report. It examines current and potential future impacts of climate trends. <http://energy.gov/sites/prod/files/2013/07/f2/20130716-Energy%20Sector%20Vulnerabilities%20Report.pdf> And the interactive map showing impacts to energy at <http://energy.gov/articles/climate-change-effects-our-energy>



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